

EUROPEAN FOREST EXPERIMENT STATIONS

Samuel T. Dana, 1907

Following the World Forestry Congress in Rome last spring, I had an opportunity to visit a number of the European forest experiment stations from Italy north to Scandinavia. A brief account of the organization and activity of these may be of interest to readers of the News.

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The Italian Forest Experiment Station, with headquarters at Florence, is a part of the forest school. Its members do not, however, teach, but have their entire time for research. The station was organized in 1922, and has, so far, devoted its attention mainly to experiments in reforestation, chiefly with exotics. By the end of 1925, nearly 160 sample plots had been established with a total area of approximately 150 acres. The staff consists of a director and two assistants. These two men plan experiments and exercise general supervision over their execution, but most of the actual field work is handled by the administrative force. No studies of physical factors have yet been made, but it is hoped to undertake these presently in connection with the establishment of branch stations.

✓ In Austria the forest experiment station at Mariabrunn, which is one of the oldest in the world, has no connection with the forest school. The director is a forester who has specialized in entomology. The other three members of the staff include two foresters, specializing in silviculture and forest

mensuration, and a soil chemist. The station has been very hard hit financially, and is much smaller than before the war. As soon as additional funds are available, the director is anxious to add to the staff specialists in mathematics and physics. The mathematician would devote himself particularly to problems in forest mensuration, but would also assist other members of the staff in the mathematical analysis and interpretation of their data. The Physicist would study physical properties, both of woods and of soils. It is the policy, so far as possible, to secure men who have been trained both in forestry and in some specialty, such as entomology, chemistry, mathematics, and physics, but this combination is difficult to find. The station hopes to obviate the difficulty, in part at least, by securing legislation authorizing it to permit members of the staff to continue their studies while on pay. The work of the station has covered a broad field, and has involved the establishment of many sample plots in various parts of Austria. In addition to its strictly investigative work, the station makes a number of reports each year on the management of privately-owned woodlands. A portion of the revenue from this service is turned over to the man making the report and to the director of the station.

Bmo (Brinn) Czechoslovakia has very ambitious plans for the development of forest research in that country. Here, instead of having one single experiment station, the work is organized in a

separate "institute" for each branch of forestry, such as silviculture, mensuration, economics, products, entomology and pathology, and forest soils. Each "institute" is headed by a director, who may or may not have one or more assistants, and who reports directly to the chief of the National Forest Service. Some of the directors devote their entire time to research, while others have in addition considerable teaching. The entire organization is still in a formative stage, and comparatively little field work has yet been possible. Perhaps the most progress has been made in studying forest soils, with particular reference to the relation of their chemical properties to tree reproduction and growth. In comparison with the stations in Austria and Germany, Czechoslovakia has ample funds available for forest research, and the main problem is to get it properly organized under thoroughly competent men.

The only German forest experiment station I visited was at Tharandt. Here the experiment station and the forest school are so closely connected as to be almost inseparable, since the entire staff engages both in instruction and in research. The station and the school are parts of the Saxon State Forest Service, but the supervision exercised by the latter appears to be little more than nominal. The station has had a long and honorable history, but like that at Maria-brunn has been rather badly crippled financially since the war.

Its work has been largely in the fields of silviculture and mensuration, and at present it is particularly interested in the much advertised deterioration of pure spruce stands in parts of Saxony. It is interesting to note that the men at Tharandt are thoroughly convinced that research can be handled to best advantage by men who are also engaged in teaching; while at Mariabrunn, they are equally convinced that the two functions should be kept entirely separate.

In Finland rapid progress in forest research has been made since the revolution. The experiment station is divided into the three sections of silviculture, soil science, and forest management, including mensuration. Each of these is in charge of a chief who is selected with great care, and who usually has one or two assistants. Scientific knowledge and ability to handle research work are the primary qualifications, practical experience while of course valuable being regarded as of secondary importance. At the same time more emphasis is placed on having members of the experiment station engage in actual forest management than at any other station with which I am familiar. For this purpose tracts aggregating some 130,000 acres have been turned over to the station, which is entirely responsible for their management. Working plans for these areas are made by the station staff, which also supervises timber sales and other activities on them. It is hoped in this way to keep the station more thoroughly in touch with the actual practice of forestry, and to prevent its members

from becoming too theoretical. Permanent sample plots are established only on state-owned forests. Much attention is paid to the relation between environment, particularly soil conditions, and forest management. Finland has also gone farther than any other country, except perhaps Sweden, in the application of statistical methods in forest research.

Sweden has an exceptionally strong and well-organized forest experiment station, which is independent of either the State Forest Service or the forest school, except that it has the same board of directors as the latter. Its activities are divided into three sections known as the Forestry Division, the Natural Science Division, and the Forest Entomology Division. There is also a temporary division for the study of regeneration in Northern Sweden, which it is anticipated will be discontinued about 1930. The heads of these divisions are appointed for life by the King, and are selected with great care after a thorough canvass of all available candidates. The station is well financed and ^{is} housed in an attractive building of its own, with one of the largest staffs in Europe. Many sample plots have been established in all parts of the country, but such work is now being concentrated, so far as possible, at three sub-stations in southern, central, and northern Sweden, varying from about 2,200 to 4,700 acres in size. Cuttings on these areas, both for research and for the good of the forest, are controlled by the experiment station, but the timber sale work is handled by the regular administrative officers.

My general impression is that our own forest experiment stations compare much more favorably with the European than I had supposed to be the case. The European stations are, of course, older and have much more in the way of concrete accomplishment to their credit. They have produced more outstanding individual investigators, and are unquestionably ahead of us in studies of physical factors of environment. In other fields I believe that our work compares favorably with theirs, both in quality and amount. Our work is more highly organized, and I believe that there is closer cooperation between workers in different fields and at different institutions. Our organization is perhaps somewhat more bureaucratic than theirs in that the director has more authority and that the station is more closely supervised by the central office. Most of the European stations, whether a part of the State Forest Service or attached to a forest school, seem to have a very large degree of independence, while their directors, who are usually elected or appointed for a term of from one to three years, confine themselves largely to the handling of routine administrative activities without attempting much real supervision of the work of their associates.

To sum up, I believe that there is much which forest investigators in Europe and the United States can learn from each other, and that closer and more intimate relations between them should be promoted in every possible way.